

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claim 1 (currently amended): Method for measuring a talking
2 quality of a communication link in a communications network,
3 the method comprising:

4 a main step of subjecting a degraded speech
5 signal $s'(t)$ with respect to a reference speech signal $s(t)$
6 to an objective measurement technique ~~(32)~~ for measuring a
7 perceptual quality of speech signals, and producing a
8 quality signal q which represents an estimated value
9 concerning the talking quality degradation;

10 the degraded speech signal comprising a returned
11 signal $r(t)$;

12 in which the objective measurement technique comprises a
13 step of modelling masking effects in consequence of noise
14 present in the returned signal comprising the determination
15 of a threshold noise level, by determining a local minimum
16 value of the degraded speech signal $s'(t)$.

1 Claim 2 (original): Method according to claim 1, in which
2 the reference speech signal $s(t)$ comprises a silence period
3 and the threshold noise level is determined in the part of
4 the degraded speech signal $s'(t)$ corresponding to the
5 silence period in the reference speech signal $s(t)$.

1 Claim 3 (original): Method according to claim 2, in which
2 the silence period is provided at the start of the reference
3 speech signal $s(t)$.

1 Claim 4 (original): Method according to claim 3, in which
2 the silence period has a duration of at least 0.5 sec, more
3 preferably at least 0.9 sec.

1 Claim 5 (original): Method according to claim 1, in which
2 the threshold noise level is estimated as local minimum
3 values of successive parts of the degraded speech
4 signal $s'(t)$.

1 Claim 6 (original): Method according to claim 1, in which
2 the threshold noise level is estimated as the local minimum
3 value of the degraded speech signal $s'(t)$ in a predefined
4 value range.

1 Claim 7 (currently amended): Method according to claim 1, in
2 which the main step comprises:

3 a first processing step of processing the degraded
4 speech signal $s'(t)$ and generating a first representation
5 signal $R'(t, f)$;

6 a second processing step of processing the reference
7 speech signal $s(t)$ and generating a second representation
8 signal $R(t, f)$;

9 a step of subtracting ~~(32a)~~ the first representation
10 signal from the second representation signal as to produce a
11 difference signal $D(t, f)$;

12 a first substep of producing ~~(41)~~ an estimated value N_e
13 of the loudness of the noise present in the returned signal;
14 and

15 a second substep of noise suppression ~~(42)~~ carried out
16 on the difference signal using said produced estimated
17 value N_e as to produce the modified difference
18 signal $D'(t,f)$; and

19 a step of integrating ~~(32e)~~ the modified difference
20 signal $D'(t,f)$ with respect to frequency and time as to
21 produce the quality signal q .

1 Claim 8 (currently amended): Device for measuring a talking
2 quality of a communication link in a communications network
3 ~~(10)~~, the device comprising:
4 measurement means ~~(22; 31, 36)~~ connected to the
5 communication link, the measurement means being arranged to
6 subject a degraded speech signal $s'(t)$ with respect to a
7 reference speech signal $s(t)$ to an objective measurement
8 technique for measuring a perceptual quality of speech
9 signals, and producing a quality signal (q) which represents
10 an estimated value concerning the talking quality
11 degradation;

12 the degraded speech signal comprising a returned
13 signal $r(t)$;
14 in which the measurement means ~~(22; 31, 36)~~ are arranged to
15 execute the objective measurement technique by modelling
16 masking effects in consequence of noise present in the
17 returned signal in which the objective measurement technique
18 comprises the determination of a threshold noise level by
19 determining a local minimum value of the degraded speech
20 signal $s'(t)$.

1 Claim 9 (original): Device according to claim 8, in which
2 the reference speech signal $s(t)$ comprises a silence period
3 and the measurement means are further arranged to determine

4 the threshold noise level in the part of the degraded speech
5 signal $s'(t)$ corresponding to the silence period in the
6 reference speech signal $s(t)$.

1 Claim 10 (original): Device according to claim 9, in which
2 the silence period is provided at the start of the reference
3 speech signal $s(t)$.

1 Claim 11 (original): Device according to claim 10, in which
2 the silence period has a duration of at least 0.5 sec, more
3 preferably at least 0.9 sec.

1 Claim 12 (original): Device according to claim 8, in which
2 the measurement means are arranged to estimate the threshold
3 noise level as local minimum values of successive parts of
4 the degraded speech signal $s'(t)$.

1 Claim 13 (original): Device according to claim 8, in which
2 the measurement means are arranged to estimate the threshold
3 noise level as the local minimum value of the degraded
4 speech signal $s'(t)$ in a predefined value range.

1 Claim 14 (currently amended): Device according to claim 8,
2 in which the device comprises:

3 first processing means ~~(39)~~ for processing the degraded
4 speech signal $s'(t)$ and generating a first representation
5 signal $R'(t,f)$, the first representation signal $R'(t,f)$
6 being a representation signal of a signal combination of the
7 talker speech signal and the returned signal;

8 second processing means ~~(38)~~ for processing the talker
9 speech signal $s(t)$ and generating a second representation
10 signal $R(t,f)$;

11 combining means ~~(32)~~ for combining the first and second
12 representation signals as to produce said output signal q,
13 the combining means including

14 subtracting means ~~(40)~~ for subtracting the first
15 representation signal from the second representation signal
16 as to produce a difference signal $D(t,f)$;

17 modelling means ~~(41, 42)~~ for modelling the masking
18 effects carried out on the difference signal as to produce a
19 modified difference signal, including means ~~(41)~~ for
20 producing an estimated value N_e of the loudness of the noise
21 present in the returned signal, and means ~~(42)~~ for carrying
22 out a noise suppression on the difference signal using said
23 produced estimated value N_e , and for producing the modified
24 difference signal $D'(t,f)$; and

25 integrating means ~~(43)~~ for integrating the
26 modified difference signal with respect to frequency and
27 time as to produce the quality signal q.